Reponses to Missouri Department of Natural Resources (MDNR) July 31, 2015 Comments on the July 6, 2015 Work Plan for Additional Characterization of Extent of Radiologically-Impacted Material in Areas 1 and 2, West Lake Landfill Operable Unit-1, Bridgeton, Missouri

1. Task #2, first paragraph, page 3: This paragraph describes cutting of vegetation using a "brush hog" or "skid steer with a vegetation cutter attachment". Please describe the size of vegetation that such equipment will be used to cut. Will cutting be limited to brush and small trees with a certain trunk diameter? Also, explain if any hand tools, such as loppers, will be used to minimize potential for ground disturbance.

Response: *The typical size of the vegetation that will be cut is approximately 1-inch in diameter or less. Most of the vegetation to be cleared consists of honeysuckle bushes which have multiple branches that are typically less than one-inch in diameter growing out of a central crown. We do not intend to cut or clear any large trees (i.e., those with trunk diameters greater than one inch). In order to minimize the duration of the work and potential for accidents, all of the work is expected to be performed using the "brush hog" or skid steer with vegetation cutter attachment. Please also see the response to EPA Specific Comment No. 2d.*

2. Task #2, third paragraph, page 3: The first sentence states, "In the unlikely event that a major precipitation event were to occur after clearing of vegetation but before placement of the geotextile and road base material at a location(s) with a potential for erosion and runoff transport of eroded soil to one of the perimeter drainage ditches, one or more sediment samples may be obtained."

a. It is recommended that sediment samples be obtained regardless of timing of precipitation events to placement of geotextile. It is important to confirm that there is no offsite migration given past occurrences on the AAA Trailer property and rutting of RIM during construction of the fence along the northern edge of Area 1.

Response: *Because the purpose of the contingent sediment sampling is to assess potential migration of site related constituents, if any, that may result if a major precipitation event were to occur after the vegetation had been cleared but before the geotextile and road base materials have been placed, sediment samples will only be collected if such an event were to occur.*

b. The Department has previously commented that vegetation clearing and grading may require erosion controls and compliance testing of stormwater discharges (see Comment #3 of letter dated June 18, 2014 regarding the Work Plan for Removal Action Preconstruction Work). In the event of precipitation, provisions should be

included in the work plan to collect stormwater discharge samples (not just sediment) for analyses of contaminants of concern including radiological constituents. Stormwater outfall locations should be identified prior to start of vegetation clearing.

Response: *With respect to erosion controls, the cutting of vegetation should not result in any disturbance of the ground. Regardless, placement of the geotextile and roadbase material soon after the vegetation is cut will eliminate any potential for erosion. Lastly, per the response to EPA specific comment no. 2g, hay bales or straw wattles will be acquired and pre-positioned adjacent to the perimeter drainage ditches to allow for rapid deployment in the highly unlikely event that erosion were to occur from the vegetation cutting activities. Because no ground disturbance is expected, combined with the planned erosion control measures, collection of stormwater discharge samples is not included as part of this investigation.*

c. There are state and federal regulations regarding stormwater permits for landfills (see 10 CSR 20-6.200(2)(B)3.B and 40 CFR 122.26(a)(14)(v)). According to these regulations, a stormwater permit is required for "landfills, land application sites and open dumps that receive or have received any industrial wastes ...". The 2000 Remedial Investigation Report for Operable Unit 1, Section 3.2, states, "Beginning in the early 1950s or perhaps the late 1940s, portions of the quarried areas and adjacent areas were used for landfilling municipal refuse, industrial solid wastes and construction demolition debris." These regulations require issuance of a stormwater permit regardless of land disturbance permit requirements. Please include provisions in the work plan for acquisition of the appropriate stormwater permit(s).

Response: *Bridgeton Landfill is in compliance with the state and federal regulations regarding stormwater permits for landfills, has a site-specific stormwater permit and performs routine monitoring of the site stormwater outfalls in accordance with its permit. With regard to the cutting of vegetation required under the Work Plan, additional stormwater permitting is not required. Under CERCLA, on-site actions at Superfund sites are not subject to permit requirements, and all contemplated work will be conducted on-site. Furthermore, cutting of vegetation above the ground surface does not constitute land disturbance subject to stormwater permitting requirements. Therefore, the substantive requirements of the stormwater regulations are not applicable or relevant and appropriate to this activity. Notwithstanding the foregoing, the monitoring conducted pursuant to Bridgeton Landfill's site-specific stormwater permit includes monitoring of outfalls to which stormwater runoff from Areas 1 and 2 would flow through.*

3. Task #2, third paragraph, page 4: The last sentence states, "The analytical results would be compared to the results obtained from the same locations during the RI

sampling." Please provide a map of RI sediment sampling locations and results.

Response: *A map was previously provided in conjunction with the responses to EPA's specific comment no. 2 and is also included with the responses to EPA's comments.*

4. Task #3, page 4: The first sentence states, "A Sonic drilling rig will be brought on site to drill soil borings and collect soil core samples at each location." Please make mention here why the GCPT rig is not being used. It is confusing until page 8 why GCPT soundings are not being conducted.

Response: *A reference to the explanation as to why a GCPT rig is not being used will be added to this section.*

5. Task #3, page 4: The second sentence states, "The Sonic rig will drill down through the solid waste materials and through approximately 5 feet of the underlying native materials, collecting continuous soil/waste samples (to the extent possible given actual core recoveries)." As with the Phase lD investigation, please provide topographic maps for the time before placement of waste and slightly after to show the anticipated depth to underlying native materials. A table showing anticipated depth to bottom of waste at each boring location would be helpful. This will ensure all potential RIM at depth has been identified.

Response: *As indicated by EPA's specific comment no. 7, the 1971-1975 topographic elevations are only considered relevant to that portion of Area 1 that is located beneath the above-grade portion of the North Quarry area of the Bridgeton Landfill. This area was recently investigated as part of the Phase 1 and Phase 1D investigations and no additional investigations are proposed for these areas. Consistent with EPA's Presumptive Remedy Guidance for CERCLA Municipal Solid Waste Landfills, none of the remedial alternatives for OU-1 envision removal of all of the waste materials from Areas 1 or 2. Therefore, contour maps of the depth of refuse or the elevation of the base of refuse have never been prepared. Consequently, we do not currently have an established basis that could be used to estimate the depth of refuse at each of the proposed drilling locations. Regardless of the anticipated depth of waste at any of the proposed drilling locations, all borings will be drilled through the entire waste column and into the underlying alluvium/natural materials to insure that all potential RIM at depth is identified.*

6. Task #6, page 5: The last sentence states, "The purpose for collection of TAL metals, transition metals (e.g., Scandium, Niobium and Tantalum), and Sulfate, Carbonate and Fluoride is to provide multiple lines of evidence to delineate and differentiate radiological constituents associated with leached barium sulfate residue ("LBSR") disposed of at the site from radiological constituents associated with

other waste materials and/or naturally occurring radionuclides. Please explain in more detail the purpose and significance for adding these constituents to the sampling analyte list.

Response: *Please see the response to EPA specific comment no. 3.*

If other radiological constituents other than "LBSR" are discovered, be aware that the Solid Waste Regulation (10 CSR 80-3.010(3)(A)(2)) prohibits disposal of radioactive wastes in a permitted Solid Waste Landfill. Please be prepared to address this issue when selecting ARARs for the on-site engineered disposal cell and for residual contamination following excavation of radiological wastes, if such alternative is selected, that are below cleanup levels but above background that will remain on-site. The discussion of ARARs should also focus on solid waste regulations as they relate to the CERCLA action at this site.

Response: *Evaluation of ARARs associated with an on-site disposal cell was previously addressed in the Supplemental Feasibility Study (SFS) and will be addressed again in the Supplemental SFS.*

As part of the Supplemental SFS, Respondents will make a determination as to whether specific requirements of these regulations may be relevant and appropriate with respect to any action that may be taken that results in waste materials, some of which may contain radiomuclides at levels above background, remaining in Areas 1 or 2 considered.

7. Task #8, page 5: The third sentence states, "Specifically, two samples will be collected from each of four borings in Area 1, and two samples from each of six borings in Area 2 (resulting in a total of 20 solid samples)." Which borings will these samples be collected from? Is there a hierarchy for which borings will be selected over others to collect samples for fate and transport evaluations?

Response: *Please see the response to EPA Specific Comment No. 4.*

8. Task #9, page 7: The second sentence states, "Specifically, during the drilling activities, attempts may be made to obtain approximately 20 Shelby tube or other type of undisturbed or nearly undisturbed samples (approximately 6 from Area 1 and 14 from Area 2) from overburden waste materials above the RIM to the extent collection of such samples is possible from a decomposed MSW matrix." Please show where these Shelby tube samples are expected to be collected from and what to what depth they will be attempted.

Response: *As discussed in the response to EPA Specific Comment No. 5, upon further*

consideration, collection of geotechnical samples to support radon emissions calculations is not appropriate for the additional characterization of Areas 1 and 2 and will be deleted from the work plan.

9. Task #9, page 7: This task lists several ASTM methods that will be used for geotechnical evaluations to support radon flux calculations (i.e. ASTM D7263, D6539, D2219 and D4318). Please describe how each of these ASTM methods is used to support the radon flux calculations.

Response: *As discussed in the response to EPA Specific Comment No. 5, upon further consideration, collection of geotechnical samples to support radon emissions calculations is not appropriate for the additional characterization of Areas 1 and 2 and will be deleted from the work plan.*

10. Task #9, page 8: The first sentence on the page states, "In the event that undisturbed samples cannot be obtained, approximately 20 samples (approximately 6 from Area 1 and 14 from Area 2) will be collected for determination of soil moisture content by ASTM method D2216." It is unclear how these samples will be collected. Will they be taken from the sonic cores or other drilling method? Also similar to Comment #8, please identify where these samples will be located and at what depth.

Response: *As discussed in the response to EPA Specific Comment No. 5, upon further consideration, collection of geotechnical samples to support radon emissions calculations is not appropriate for the additional characterization of Areas 1 and 2 and will be deleted from the work plan.*

Project Team, page 11: The last sentence states, "Sonic drilling will be conducted by Frontz Drilling, both of which were the same drilling contractors used for the prior Phase 1 work." There appears to be a typo as only one drilling contractor is mentioned.

Response: *Agreed. The sentence will be revised.*